

U.S. Patent Application Serial No. 09/926,260
Amendment Accompanying RCE
Reply to OA of January 6, 2004

REMARKS

Claims 1-9 are pending in this application.

Claims 1, 4, 8 and 9, have been amended herein. Claims 1, 4, 8 and 9, have been amended to require that the layered phyllosilicate consists of untreated phyllosilicate. Support for this amendment appears in the specification on page 14, lines 16-17, on page 107, paragraph two, and in the Examples.

No new matter has been added by this amendment.

In view of the amendments to the claims and the remarks set forth below, further and favorable consideration is respectfully requested.

I. Claims 1-7 are rejected under 35 U.S.C. §102(a) as being anticipated by Matabayas (WO 98/29499).

The Examiner maintains the Matayabas teaches a polyester/platelet composition where the amount of clay, particle diameter and width, aspect ratio and IV, fall within the presently claimed ranges. The Examiner maintains that the other claimed ranges are inherent because Matayabas teaches a process where the pressure, extruder speed and temperature, are encompassed by the present invention.

Anticipation under 35 USC § 102, requires that a single prior art reference teach each and every element of the claimed invention. In view of the following, this rejection is respectfully overcome.

Claims 1 and 4 have been amended to require that the phyllosilicate consists of untreated phyllosilicate.

Specifically, the present resin composition is prepared using layered phyllosilicate consisting of untreated phyllosilicate. Matayabas requires layered phyllosilicate treated with an organic ammonium salt.

Further, the present layered phyllosilicate is not treated with a finishing agent such as a silane compound or an organic onium salt, or any swelling agent. As a result, there is no detrimental effects to the layered phyllosilicate, i.e., deterioration, resin coloring, or lowering of thermal stability, caused by the use of such a finishing agent or swelling agent (see page 14, lines 17 to 22 of the present specification). The effect of controlling coloring is also evident from the test results of present Example 1 and Comparative Example 11, shown in Table 5 on page 74, of the present specification.

Further, because layered phyllosilicate consisting of untreated phyllosilicate is used, the present resin composition can be prepared in a shorter period of time as compared to preparation time using treated phyllosilicate. According to the results of additional experiments performed by the inventors, the time for preparation of Example 1 was 4.7 hours in contrast to 14.0 hours in Comparative Example 11. The preparation time of Example 1 was significantly reduced to 1/3 of the preparation time of Comparative Example 11.

Please note, that in Comparative Examples 11 to 13 of Matayabas, untreated layered phyllosilicate is used. But, these Comparative Examples describe, “most of the platelet particles have thickness greater than 100 nm” and “compression molded 10-mil thick films were clear but

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contained agglomerates of clay visible to the eye.” Thus, layered phyllosilicate exists within the polymer in the form of very large agglomerates in Comparative Examples 11 to 13 of Matayabas. Accordingly, the polymer compositions obtained therefrom do not satisfy the required parameters of present claims 1 and 4.

In Matayabas, in order to finely disperse layered phyllosilicate within the polymer, the layered phyllosilicate **must** be treated in advance with a treating agent such as a dispersing agent and a swelling agent.

The present preparation process does not use or need a treating agent. As described on page 37, lines 6 to 9 of the present specification, when water is used as the dispersion medium, a dispersion of layered phyllosilicate and water can be prepared, in which the layered phyllosilicate is swelled and cleft almost to the state of unit layers, **without using a treating agent**. Subsequently the dispersion is mixed with pre-polymer and then polymerization is carried out, while maintaining the condition of the layered phyllosilicate dispersed to a state of unit layers as it is, and consequently the obtained polymer satisfies the parameters required by present claims 1 and 4.

In view of the amendments to claims 1 and 4, and the remarks set forth above, it is submitted that Matabayas does not teach each and every element of the claimed invention as required for anticipation under 35 USC § 102 (b). Accordingly, the Examiner is respectfully requested to withdraw this rejection.

II. Claim 8 is rejected under 35 U.S.C. §103(a) as being unpatentable over Trexler (U.S. Patent NO. 6,162,857) in view of Matabayas (WO 98/29499).

The Examiner states that it would have been obvious to the skilled artisan to polymerize the

oligomers polyester of Trexler and thereby obtain the claimed invention.

Trexler discloses a process including dispersing a clay material in a water dispersible polymer to form a clay dispersion, introducing the dispersion to a polyester, and extrusion mixing the dispersion and polyester to form a platelet particle-polyester composite composition primarily comprised of platelet particles and tactoids. Trexler requires the removal of water from the aqueous clay/water-dispersible polymer slurry.

Trexler teaches at the paragraph bridging columns 8 and 9, that it is desirable to treat the clay material to facilitate separation, with for example, silane compounds, metals or organometallics, and organic cations.

Claim 8 has been amended to require that the phyllosilicate consists of untreated phyllosilicate.

Matabayas requires the use of treated clay and Trexler teaches at col. 8 that treating is preferred. In view thereof, the skilled artisan would not be motivated to use untreated phyllosilicate, as required by amended claim 8.

Trexler discloses a preparation process including preparing a dispersion of clay, water dissipatable polymer (AQ55) (a dispersing agent) and water, and introducing the resultant dispersion to a polyester to form a platelet particle-polyester composite composition.

The present preparation process does not use or need a treating agent. As described on page 37, lines 6 to 9 of the present specification, when water is used as the dispersion medium, a dispersion of layered phyllosilicate and water can be prepared, in which the layered phyllosilicate is swelled and cleft almost to the state of unit layers, ***without using a treating agent***. Please see the

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discussion of the present invention, set forth above responsive to the previous rejection.

Assuming *arguendo* motivation to modify Matabayas exists, the present process would not be achieved.

The Examiner points out that the difference between the present invention and Trexler, is the step of polymerization (step (C) of Claim 8). However, Trexler also does not teach or suggest present step (B) required by Claim 8 (a step for mixing a component having low polymerization degree of the thermoplastic polyester resin with said dispersion of layered phyllosilicate and water).

It is submitted that Matayabas does not cure the deficiencies of Trexler. Specifically, Matayabas discloses that layered phyllosilicate is mixed with oligomer in powder form. Accordingly, Matayabas also does not teach or suggest present step (B) required by Claim 8.

In view of the above and the amendments to the claims, it is submitted that neither of Trexler and Matayabas, taken alone or together, suggest the use of untreated phyllosilicate as presently required, nor do they teach or suggest a process including step (B) required by Claim 8. Thus, the combination of Trexler and Matayabas do not teach, suggest or result in, the presently claimed invention including required step (B).

It is submitted that nothing in Trexler and Matayabas, taken alone or together, render the claimed invention obvious within the meaning of 35 USC § 103. Accordingly, the Examiner is respectfully requested to withdraw this rejection.

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If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact Applicants undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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